

## Claims

- [c1] 1.A centrifugal blower wheel for a heating, ventilation and air conditioning (HVAC) blower unit, comprising:  
a first blade support;  
a second blade support; and  
a plurality of S-shaped blades disposed between said first and said second blade supports, wherein each of said S-shaped blades has a trailing edge bent in a forward direction with respect to a defined direction of rotation of the wheel.
- [c2] 2.The blower wheel of claim 1, wherein a leading edge of said S-shaped blades is inwardly curved with respect to the center of the wheel.
- [c3] 3.The blower wheel of claim 2, wherein said trailing edge is outwardly curved with respect to the center of the wheel.
- [c4] 4.The blower wheel of claim 1, wherein said plurality of S-shaped blades comprises about 12 to about 18 individual blades.
- [c5] 5.The blower wheel of claim 1, wherein said plurality of S-shaped blades comprises 16 individual blades.

- [c6] 6. An integrated heating, ventilation and air conditioning (HVAC) blower apparatus, comprising:  
a centrifugal blower wheel disposed within a housing;  
an electronically commutated motor (ECM) in operative communication with said centrifugal blower wheel, said ECM extending at least partially through a first inlet cone disposed in a first side of said housing; and  
said centrifugal blower wheel further comprising:  
a first blade support;  
a second blade support; and  
a plurality of S-shaped blades disposed between said first and said second blade supports, wherein each of said S-shaped blades has a trailing edge bent in a forward direction with respect to a defined direction of rotation of said wheel.
- [c7] 7. The HVAC blower apparatus of claim 6, wherein a leading edge of said S-shaped blades is inwardly curved with respect to the center of the wheel.
- [c8] 8. The HVAC blower apparatus of claim 7, wherein said trailing edge is outwardly curved with respect to the center of the wheel.
- [c9] 9. The HVAC blower apparatus of claim 6, wherein said plurality of S-shaped blades comprises about 12 to

about 18 individual blades.

[c10] 10.The HVAC blower apparatus of claim 6, wherein said plurality of S-shaped blades comprises 16 individual blades.

[c11] 11.The HVAC blower apparatus of claim 6, wherein said inlet cone has a minimum diameter at about a midpoint thereof.

[c12] 12.A heating, ventilation and air conditioning (HVAC) system for heating/cooling a space, comprising:  
a system controller;  
at least one of heating and cooling source;  
an integrated blower apparatus in communication with said system controller; and  
an airflow path for circulating air through the space;  
said integrated blower apparatus further comprising:  
a centrifugal blower wheel disposed within a housing,  
said centrifugal blower wheel further including a first blade support, a second blade support, and a plurality of S-shaped blades disposed between said first and said second blade supports, wherein each of said S-shaped blades has a trailing edge bent in a forward direction with respect to a defined direction of rotation of said wheel; and  
an electronically commutated motor (ECM) in operative

communication with said centrifugal blower wheel, said ECM extending at least partially through a first inlet cone disposed in a first side of said housing.

- [c13] 13.The HVAC blower system of claim 12, wherein a leading edge of said S-shaped blades is inwardly curved with respect to the center of the wheel.
- [c14] 14.The HVAC blower system of claim 13, wherein said trailing edge is outwardly curved with respect to the center of the wheel.
- [c15] 15.The HVAC blower system of claim 12, wherein said plurality of S-shaped blades comprises about 12 to about 18 individual blades.
- [c16] 16.The HVAC blower system of claim 12, wherein said plurality of S-shaped blades comprises 16 individual blades.
- [c17] 17.The HVAC blower system of claim 12, wherein said inlet cone has a minimum diameter at about a midpoint thereof.